

REMARKS

Claims 1-35 are pending in the application. Claims 17-34 are withdrawn but remain pending subject to rejoinder upon allowance of the elected claims.

Response to Claim Rejections under 35 U.S.C. § 112, 2nd Paragraph

At page 2 of the Office Action, claim 10 is rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite.

According to the Examiner, there is no antecedent basis for “the flow of gas caused by the chimney effect” or “the chimney effect” in claim 10.

Applicants traverse and respectfully request the Examiner to reconsider in view of the following remarks.

Claim 10 depends from claim 6. Claim 6 recites “the flow of gas caused by a chimney effect”, and thus, provides sufficient antecedent basis for the phrases in claim 10.

Accordingly, withdrawal of the § 112, second paragraph, rejection of claim 10 is respectfully requested.

Response to Rejection under 35 U.S.C. § 102

At page 3 of the Office Action, claims 1-8, 11-13 and 16 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 6,192,715 (Orita).

The Examiner cites Orita as expressly or inherently disclosing each and every element of the presently claimed invention.

Applicants traverse the rejection for the reasons of record and additionally as follows.

The present invention relates to a method of subjecting a glass preform to processing by tensile forces in a furnace to produce a glass product of predetermined shape, as recited in present claim 1. The method comprises a) introducing at least a part of the glass preform into the

furnace through an inlet opening, b) heating a portion of the glass preform introduced into the furnace to a temperature above a softening point of the preform, c) subjecting the heated portion of the glass preform to tensile forces in a drawing direction to process the preform into the predetermined shape, d) drawing the portion of the preform which has been processed into the predetermined shape from the furnace through an outlet opening, and e) flushing the heated portion of the preform and at least a part of the processed portion of the preform in the furnace with inert gas which is being fed into the furnace. The method is characterized by maintaining a concentration of gaseous impurities in the furnace essentially the same as a concentration of the same impurities in the inert gas fed into the furnace, and establishing a diffusion barrier against an inflow of impurities from the ambient air, driven by diffusion, by generating a barrier flow of inert gas in at least one opening selected from said inlet opening and said outlet opening of the furnace, said barrier flow having a direction of flow, which is generally opposite to the inflow of the impurities.

There are two kinds of barriers that can be formed in inlets of a glass processing furnace: diffusion barrier and pressure difference barrier. A diffusion barrier, as disclosed in the present invention, involves gaseous impurities, such as oxygen, in the molecule scale and against individual molecules which are driven by the forces of diffusion. In contrast, a pressure difference does not necessarily result in a diffusion barrier. However, if the gaseous concentration difference, for example, of oxygen, between the interior of the furnace and the ambient air is high, the diffusion effect is significant.

The presently claimed invention relates to establishing a diffusion barrier against an inflow of impurities from the ambient air, driven by diffusion, by generating a barrier flow of inert gas in at least one opening selected from the inlet opening and the outlet opening of the

furnace, and the barrier flow having a direction of flow, which is generally opposite to the direction of the impurities. In the present invention, the molecule scale and the concentration difference is explicitly disclosed in the claims, “concentration of gaseous impurities...same as impurities in the inert gas...” and “impurities from the ambient air”. Also, oxygen is not inert and is thus an impurity.

Orita is does not expressly or inherently disclose or suggest establishing a diffusion barrier against an inflow of impurities from the ambient air, driven by diffusion, by generating a barrier flow of inert gas in at least one opening of the furnace as recited in present claim 1. Even though a high enough pressure difference may result in a diffusion barrier, Orita does not sufficiently disclose teachings, for example, dimensioning of orifices, taking into account chimney effect, etc., to establish that a diffusion barrier is inherently present or for a person having ordinary skill in the art to form a diffusion barrier corresponding to the presently claimed invention according to present claim 1. Thus, the Examiner has not met his burden of providing a reasonable technical basis for asserting that a diffusion barrier is necessarily present in Orita. In this regard, the Examiner appears to use Applicants’ claim language and the teachings of the present invention to extrapolate the teachings of Orita to conclude that Orita expressly or inherently teaches or suggests, for example, dimensioning of orifices, taking into account chimney effect, etc. However, Orita does not expressly or inherently disclose or suggest the present invention as a whole.

Orita fails to expressly or inherently anticipate the presently claimed invention. Accordingly, withdrawal of the § 102 rejection of claims 1-8, 11-13 and 16 is respectfully requested.

Response to Claim Rejection - 35 U.S.C. § 103

At page 6 of the Office Action, claims 9-10, 14 and 15 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Orita.

Applicants traverse the rejection and submit that claims 9-10 and 14-15 ultimately depend from claim 1 and are not rendered obvious by Orita for the reasons set forth above. Namely, Orita does not disclose all elements of claim 1 and there is no apparent reason to modify the disclosure of Orita with a reasonable expectation of success in arriving at the claimed invention because the presently claimed invention and Orita are completely different in their scope and features.

Withdrawal of the § 103 rejection of claims 9-10 and 14-15 is respectfully requested.

Claim 35

Claim 35 recites that the barrier flow of inert gas is laminar. The Examiner did not provide comments with respect to claim 35 in the Office Action dated April 20, 2010. However, Applicants submit that claim 35 depends from claim 1 and is patentable at least by virtue of its dependency from claim 1.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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